

TITLE OF THE INVENTION

METHODS AND SYSTEMS FOR ELECTRONIC ORDER ROUTING (CORS)

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PRIORITY APPLICATIONS

This application claims the benefit of US Provisional Application No. 60/146,523
filed July 30, 1999, entitled "System And Method For Electronic Order Routing (CORS),"
and is incorporated herein by reference.

10 This application also claims the benefit of US Provisional Application No. 60/180,288
filed on February 4, 2000, entitled "System And Method For Electronic Order Routing
(CORS)," and is incorporated herein by reference.

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BACKGROUND OF THE INVENTION

1. Field of the Invention

20 The present invention relates generally to the field of electronic order routing that
allows a user to select, order, route, confirm, and track orders for multiple financial
instruments among multiple buyers and sellers (e.g., fund managers, brokers, custodians,

etc.). More specifically, the present invention provides end-to-end, straight-through-transaction processing methods and systems for multiple financial instruments combining order routing, execution, settlement, foreign exchange, and custodial services to multiple parties to a financial transaction.

5 2. Background

Historically, many fund managers, for example, in Europe, sell mutual funds to and distribute those funds through brokers. As used herein, the term “fund managers” is used to represent mutual fund managers, executing brokers, fund house agents, transfer agents, and other financial service providers with a retail customer base. As used herein, the term

10 “brokers” is used to represent mutual fund brokers, discount brokers, retail brokers, financial institutions, and other intermediaries that act as agents/brokers on behalf of retail clients. A broker may deal with many fund managers, and a fund manager may deal with many brokers. Currently, each separate broker makes up its own template for sending out orders, and they get back many different sorts of templates from the fund manager in terms of what the

15 confirmation information looks like. That situation makes orders and confirmations difficult to interpret, and often results in mistakes. The situation is exacerbated when the broker and the fund manager are located in different countries, and, therefore, dealing in different languages and currencies.

Lacking efficient access to foreign markets, brokers attempting to procure financial

20 products generally employ processes that are highly manual with significant risk of errors and risk of orders getting lost. For example, in order to fill a cross-border equity or a fixed income order, a broker must first establish a relationship with an fund manager in the desired market. After receiving an order, the broker transcribes the order information collected from

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its call center, customer fax, or web site onto an order ticket. The order ticket will then need to be routed to a fund manager in the foreign market for execution. The system used for the order routing may vary by fund manager and market and many times is simply transmitted as a fax. The broker then receives a notice of execution (again, most likely a fax) that needs to be matched back to the original order. The instructions associated with the trade are subsequently forwarded to the broker's clearing agent and custodian. Finally, the broker reconciles its custodian positions with its retail accounting system which is predominately a manual process. The retail accounting system must be able to handle multiple currencies and the broker must have a process in place for settling the trade in the foreign currency. This process quickly becomes unwieldy as retail volumes expand.

As another example, in order to fulfill an order for cross-border managed funds, a broker first establishes a relationship with a foreign fund manager. On a daily basis, the broker collects orders for particular funds throughout the day by way of its call center, customer fax, or web site, and sends a consolidated order for each fund to the fund house. The next day the broker receives confirmations from the fund houses that are processed against the original orders. Brokers then settle the transactions on behalf of their customers, keeping track of varying settlement instructions by currency by fund manager. Additionally, the broker ensures fund share registries have been properly updated, confirmations of which may be received days later by post, and the broker reconciles statements received from the fund managers to its retail accounting records.

As illustrated in the above illustrative examples, the communication between the broker and the fund manager is often done by fax, telephone, or non-standardized means, which translates into much re-keying, possible data entry errors, lack of standardization in information received, and missing or lost information. While one or more fund managers

have tried to automate some aspects of their own systems from time to time, such aspects are limited to communications between a particular broker and a particular fund manager and do not relate to communications between all brokers and all fund managers.

Another problem is that despite the globalization of investment on an institutional
5 level, brokers remain limited in their ability to invest outside of their home country because the process of ordering and paying for "foreign" investment products is filled with complexities and because transaction costs are prohibitive. The majority of the components making up the costs involved in cross-border trading is inherent on there simply being a transaction and does not vary based on the size of the transaction. At the institutional level,
10 this cost is generally small relative to the overall trade value, but can become significant quickly for a retail trade. Such trade-based transaction costs include order routing and settlement messaging. Furthermore, while execution commissions are generally value-based, steep minimums can also contribute to a disproportionate cost for a retail-size order.

In addition to the aforementioned problems, brokers may have difficulty in obtaining
15 other types of information about financial instruments. For example, brokers face difficulties in pricing the security quickly and easily in terms investors understand (e.g., an investor's local currency). In addition, brokers find it difficult to obtain and disseminate current fund prospectuses in the appropriate language. Further, brokers find it difficult to locate the appropriate security identifiers required by the fund managers in order to quote and execute a
20 trade based on security descriptions provided by the broker's investors.

Thus, a need exists for methods and systems for remotely accessing a secure communications network that provides fund managers and brokers a single point of entry to electronically order and confirm various types of financial instruments, as well as to provide additional flexibility and functionality in managing these orders. A need also exists for

electronic order routing methods and systems that afford basic checks on order information and that prevent the submission of duplicate information. There is a further need for flexible electronic order routing methods and systems that are able to: (1) monitor the real-time status of a financial order at various stages; (2) accommodate additional financial instruments and additional users as the system expands; (3) facilitate lower transaction and processing costs; (4) provide multilingual capabilities, settlement currencies, and other identifiers necessary to quote and execute an order for a financial instrument; and (5) minimize the manual entry and re-keying of information into multiple formats and templates used by brokers and fund managers.

SUMMARY OF THE INVENTION

To overcome these problems, the present invention provides easy, efficient, and reliable methods and systems for electronic order routing that allow a user to select, order, route, confirm, and track orders for multiple financial instruments among multiple buyers and sellers. In a preferred embodiment, the present invention makes use of computer hardware, operating systems, programming languages, software applications, and other technology to provide end-to-end, straight-through-transaction processing methods and systems for multiple financial instruments combining order routing, execution, settlement, foreign exchange (FX), and custodial services to multiple financial service providers with a retail customer base.

The present invention allows the same set of financial service providers and others like them to extend their breadth of financial instrument offering to include foreign equities, managed funds, and/or fixed income products. Moreover, it makes use of other client-server utilities to streamline the process of notifying the cash management bank, clearing agent,

custodian, intermediary, or other party to the financial transaction as well as automate the reconciliation process.

In an embodiment of the present invention, order information is transmitted using web-based technology or using a computer-to-computer interface (e.g., a direct link to a user's order capture system). For example, the order or other transactional information transmitted by the broker is formatted to FIX, SWIFT, or another standard electronic format, and then is transmitted and stored to a communications network that the fund manager can access and act on. Once executed, the fund manager transmits a confirming message to the communications network and the broker can access the confirmation. Additionally, the communications network manages settlement messages that are accessible to a clearing agent/custodian. Throughout these processes, the communications network allows access by any of the users to track the status of the orders and report on exception items. In another embodiment, the present invention links in executable FX rates allowing the broker to quote the security in a local currency and immediately and efficiently execute a FX trade.

The present invention provides the broker with one point of access to various financial instruments and markets by its ability to route orders for multiple instrument types using multiple ordering protocols. In an embodiment of the present invention, a network provides a front end interface, such as, for example, in the form of a computer software application that provides a template for viewing and selecting various financial instruments. Once a financial instrument is selected, the user may place an order to purchase, redeem, or switch shares of the financial instrument (e.g., mutual fund, equity fund, etc.) or upload and monitor order information. As used herein, the term "switch" means a transfer of an investment from one fund to another fund offered by the same fund manager, which generally entitles the purchaser to discounted initial and redemption fees.

An embodiment of the present invention provides an electronic communications infrastructure that involves many fund managers on one side and many brokers on the other side. An important benefit of this infrastructure is the provision of a standard infrastructure to the market that enables all users (e.g., fund managers, brokers, clearing agents, custodians, intermediaries, and other parties to a financial transaction) to use the same system to do all processing on both sides. Another important benefit is the ability to communicate in a standardized manner to users in many different countries.

In an embodiment of the present invention, part of the order information that is input by the broker is the currency in which the broker wants to pay or receive. The broker may be buying or selling a fund denominated in pounds sterling, in US dollars, or in Euros, and they may settle the transaction in whatever that fund currency is. The broker sends his or her settlement in terms of the fund currency and can handle FX conversion themselves.

Alternatively, a broker can settle the transaction in his or her home country currency and can designate that the fund manager handle the FX conversion for them. Therefore, another aspect of the present invention includes FX functionality of the system.

Further, the electronic order routing system consists of one or more client terminals that work in conjunction with a communications network(s), network server(s), and database(s). The client terminal is an interactive electronic communications device, such as, for example, PC's and/or servers running UNIX or LINUX, a Macintosh, a personal digital assistant (PDA), a pen-based computer, an interactive pager, mobile and cellular phones, a WAP phone, an interactive television, and the like. The client terminal gets all the data it needs to display "user modules" (i.e., screens that a user views) by requesting the needed data from the network server. For example, instead of a broker manually filling out its own template for sending out an order, a standardized order form in an electronic transfer

medium, such as, an interactive web page, is displayed on a client terminal coupled with a network server connected to a communications network. The order is electronically transmitted to the communications network where the data is stored to a database and may be accessed by another user (e.g., a fund manager) to execute an order.

5 In an embodiment of the present invention, the electronic order routing system supports user modules that represent screens displayed on a client terminal and that allow a user to view, input, select, and/or transmit order attributes. The user module known as the “Broker User Module - View Rate” displays a list of financial instruments available for a broker to purchase or sell. When the broker selects a particular financial instrument, the
10 “Broker User Module - Purchase Transaction” is automatically launched. The broker is then able to enter instructions, such as instructions for book shares, settlement, dealing terms, in order to purchase an order for a desired financial instrument. After the broker has entered all of the required fields to place an order, the broker clicks on the “Submit” icon on the screen and the present invention performs a series of checks regarding the validity of the order
15 information. Once the order is verified, the order is transmitted to the network server, added to the database, and made accessible to the appropriate fund manager.

In an embodiment of the present invention, at any time up to completion of the order, a broker may be allowed to cancel the broker’s order, depending upon whether the fund manager allows it, and any such changes are pending until confirmed. The user has access to
20 a Status User Module as well as a selection of reports. The system for an embodiment of the present invention provides a mechanism for both sides of the equation to communicate the details of orders and prices and order status in an automated way and allows for more of a straight-through-process of the transaction.

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In addition to providing the methods and systems outlined above, the present invention: (1) provides parties to a financial transaction with one point of access to various financial instruments and markets; (2) allows parties to a financial transaction to achieve straight-through-processing; (3) permits users to easily add financial products and service providers; (4) notifies third parties (e.g., cash bank, clearing agent, custodian, etc.) to automatically settle and arrange payment of the financial transaction; and (5) electronically reconciles custodian data with data in retail accounting systems.

Further details on these embodiments, other possible embodiments, and additional methods and systems of the present invention are set forth below.

As is appreciated by those of ordinary skill in the art, the methods and systems of the present invention have wide utility in a number of areas as illustrated by the wide variety of features and advantages discussed below.

It is a feature and advantage of the present invention to provide electronic order routing that gives multiple buyers and sellers a single point of entry to a variety of financial instruments, such as mutual funds, that are ordered as opposed to being traded against a standing price.

It is another feature and advantage of the present invention to provide electronic order routing that provides brokers a view of indicative mutual fund prices for those funds available to order or available for another financial transaction.

It is another feature and advantage of the present invention to provide electronic order routing that allows users to select financial instruments and place an order to purchase, redeem, or switch.

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It is another feature and advantage of the present invention to provide electronic order routing that affords basic checks on order information and prevents the submission of duplicate orders.

It is another feature and advantage of the present invention to provide electronic order routing that returns confirmation of an order with pricing information to the user.

It is another feature and advantage of the present invention to provide electronic order routing that allows brokers and fund managers to view order status at various stages, including affirmation that the fund manager has received orders.

It is another feature and advantage of the present invention to provide electronic order routing and distribution that enables automatic generation of cash transfer information to third parties (e.g., custodians, clearing agents, etc.) upon matching of settlement instructions (e.g., generate pre-advice or payment messages).

It is an added feature and advantage of the present invention to provide electronic order routing and distribution that enables the transfer and verification of commission information.

It is another feature and advantage of the present invention to provide electronic order routing and distribution in which information required to set up accounts with fund managers is transmitted from brokers.

It is another feature and advantage of the present invention to provide electronic order routing and distribution that affords incremental marketing information on funds and/or fund analysis.

It is another feature and advantage of the present invention to provide electronic order routing and distribution that incorporates special requirements for small intermediaries (e.g., Independent Financial Advisors).

It is another feature and advantage of the present invention to provide electronic order routing and distribution that allows portfolio switching.

It is another feature and advantage of the present invention to provide electronic order routing that allows a user to select settlement currencies and related instructions.

5 It is another feature and advantage of the present invention to provide a user with capability to conveniently create an order for a financial instrument and to conveniently transmit the order to the communications network when it is convenient to the user to do so.

It is another feature and advantage of the present invention to provide for editing of an order and/or related data.

10 It is another feature and advantage of the present invention to allow a user to: (1) enter and submit electronic orders; (2) track the status of all orders; (3) modify previously submitted orders (if allowed by a fund manager); and (4) utilize user modules and financial data similar to those used by other users.

15 It is another feature and advantage of the present invention to make it easier for financial institutions (e.g., businesses, financial service providers, etc.) to accommodate growth in the number of users and/or parties to a financial transaction.

It is another feature and advantage of the present invention to support various financial transactions, including new financial transaction as they evolve and are defined by the financial market.

20 It is another feature and advantage of the present invention to provide a flexible electronic order routing system that is capable of accommodating changes in the system architecture.

It is another feature and advantage of the present invention to provide an electronic order routing system that is capable of running on many different hardware platforms,

operating systems, programming languages, software applications, and with other computer technology.

It is another feature and advantage of the present invention to have one standardized user interface regardless of a user's computer system (i.e., the hardware platforms, operating
5 systems, programming languages, software applications, and other computer technology).

It is another feature and advantage of the present invention to allow a user to select a language (e.g., English, French, Spanish, German, etc.) to display user module information, including data that is uploaded or downloaded by a user.

It is another feature and advantage of the present invention to allow a user to store
10 data on a local computer or local network.

It is another feature and advantage of the present invention to provide on-line system help to the user.

It is another feature and advantage of the present invention to provide for multiple levels of user access and to facilitate multiple levels of security related to those levels of user
15 access.

It is another feature and advantage of the present invention to secure the source code on the network server.

It is another feature and advantage of the present invention to interface and communicate with the network communications system through a variety of electronic
20 mediums, including wireline and wireless technology, such as, for example, WAN, LAN, PSTN, satellite systems, other public and private communications networks, and the like.

It is another feature and advantage of the present invention to provide electronic order routing and distribution that enables automated input/output from broker order systems and from fund manager systems.

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It is another feature and advantage of the present invention to allow a user to upload or download financial transaction data to a network management system server.

It is another feature and advantage of the present invention to store, maintain, and manage financial transaction data to a network management system server.

5 It is another feature and advantage of the present invention to use diverse communication devices (e.g., PCs, Macintosh, pen-based computers, interactive telephones, interactive television, interactive pagers, etc.) to access and communicate with the automated document matching system.

10 It is another feature and advantage of the present invention to provide real-time access to documents associated with a financial transaction.

It is another feature and advantage of the present invention to provide a user with access to a variety of optional additional useful administrative features, such as, for example, changing a password, adding users, and setting defaults.

15 It is another feature and advantage of the present invention to minimize the amount of paper work generated by: (1) selecting, placing, confirming, and executing an order; (2) settlement and payment reports with third parties; and (3) reconciliation accounting.

20 It is another feature and advantage of the present invention to provide labor savings by eliminating the need for manual entry of financial transaction data and coordination of documentation efforts among multiple parties (e.g., fund managers, brokers, custodians, clearing agents, etc.) to complete a complex financial transaction.

It is another feature and advantage of the present invention to allow for single data entry in order to eliminate the mistakes caused by the re-entry of data by multiple users, and accordingly, to reduce the need for personnel to enter order attributes.

It is another feature and advantage of the present invention to significantly reduce

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the time required by the overall process to select, place, confirm, and execute an order.

It is another feature and advantage of the present invention to provide an automated document matching system for a financial institution's communications network.

5 These uses may be accomplished singularly, or in combination, in one or more of the embodiments of the present invention.

Additional uses, objects, advantages, and novel features of the invention is set forth in the detailed description that follows and becomes more apparent to those skilled in the art upon examination of the following or upon learning by practice of the invention.

10 **BRIEF DESCRIPTION OF THE FIGURES**

Other objects and advantages of the invention is more clearly understood by reference to the following description taken in connection with the accompanying figures, in which:

15 Figure 1, entitled "Communications Hardware Topology," illustrates an overview of the network topology in an embodiment of the methods and systems for electronic order routing.

Figure 2, entitled "System Process - Phase 1," illustrates the system process in an embodiment of the methods and systems for electronic order routing.

Figure 3A, entitled "System Schematic," illustrates the system schematic in an embodiment of the methods and systems for electronic order routing.

20 Figure 3B, entitled "Design Overview," illustrates the design overview in an embodiment of the methods and systems for electronic order routing.

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Figure 4, entitled "Database Schematic," shows the databases and relationships between databases in an embodiment of the methods and systems for electronic order routing.

Figure 5, entitled "Viewing Order Detail," is a process flow model for viewing order detail in an embodiment of the methods and systems for electronic order routing.

Figure 6, entitled "Logging On," is a process flow model for logging onto the system in an embodiment of the methods and systems for electronic order routing.

Figure 7 entitled "Fund Manager Order Download," is a process flow that a fund manager would follow to download an order in an embodiment of the methods and systems for electronic order routing.

Figures 8-31 illustrate user modules that display and prompt a user to view, input, select, and/or transmit information in one or more embodiments of the methods and systems for electronic order routing.

Figure 32, entitled "List of Database Fields in the 'View Order' User Modules" identifies data fields, provides a brief description, indicates if a data field is present, and provides a sample input for each data field used to view orders by brokers and fund managers in an embodiment of the methods and systems for electronic order routing.

DETAILED DESCRIPTION

The present invention will now be described in more detail by illustrative examples with reference to the embodiment(s) depicted in the Figures. The following described embodiment(s) is presented by way of example and should not be construed as limiting the inventive concept to any particular configuration.

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Referring to Figure 1, a basic overview of the communications hardware topology according to an embodiment of the present invention is depicted. As shown in Figure 1, the parsippany data center 110 includes a security manager 112, a message router 114, a server 116, and a database 118. The parsippany data center 110 is coupled to a plurality of client terminals 130, 140 using a communications network 120 using Transmission Control Protocol/Internet Protocol (TCP/IP). In this embodiment, the present invention makes use of a virtual private network. Clients can dial in through a modem, over integrated services digital network (ISDN), or over a fixed line, such as, for example, a leased line to access the communications network 120. Alternatively, the system operates over the Internet with suitable bridges and security.

The electronic order routing system includes at least one client terminal 130, 140. The client terminal 130, 140 typically includes a central processing unit (CPU), a monitor or other visual display device, a keyboard or some other input device, and a communications device, such as a modem. Further, each client terminal 130, 140 is electronically connected to at least one communications network 120.

In an embodiment of the present invention, the client terminal 130, 140 may be any PC running a Windows operating system or may be a Windows NT workstation with access to a global communications network, such as, the Internet. For example, the client terminal may be a PC that supports either Internet Explorer or Navigator to provide access to the Intranet or Internet. Alternatively, it should be appreciated that the client terminal could take on a variety of other suitable forms, such as, for example, PC's and/or servers running UNIX or LINUX, a Macintosh, a PDA, a pen-based computer, an interactive pager, mobile and cellular phones, a WAP phone, an interactive television, and the like. Furthermore, the client terminal could be electronically connected to a network communications system by way of

other wireline or wireless technology, including, for example, WAN, LAN, PSTN, public networks, satellite systems, and the like.

Client terminals 130, 140 transmit and receive data from a network server via a communications network. Client terminals 130, 140 interact with the network server 116 in a typical client/server platform. The operation of the system according to the embodiment shown in Figure 1 is as follows. A broker at client terminal 130 places an order to purchase, redeem, or switch a financial instrument, such as, for example, a mutual fund. The network server 116 either creates a new object in the database 118 or modifies an existing object in the database 118 to show the order. A user sitting at a client terminal 130 enters the system and requests information about specific financial instruments.

Once the user has received requested information regarding particular financial instruments, the user selects one of the financial instruments to order. The user sets parameters for an order, inputs additional information, and submits the order to the server 116. The order goes through an authentication and verification process and is then forwarded from the server 116 to the database 118. Another user may then access the communications network to confirm and further process the order.

In an embodiment of the present invention, not all users are permitted to access the same capabilities. Every user of the network server must go through a security check. Users of the server 116 are organized into a security hierarchy. High-level security users are permitted to access more sensitive system functions than low-level security users. Thus, highly secure users may access a wide range of system functionalities, while lower security level users may simply access tracking and reporting functionalities. For example, users of the server 116 may be categorized into three types: fund distributor (broker), fund manager, and customer administrator. A security check is protected by

passwords such that users are authorized to access only their own system functionality. A broker can only access functionalities associated with a broker and is not allowed to access functionalities associated with a fund manager or with a customer administrator. The same security protection applies to a fund manager or a customer administrator
5 towards other counter-parties.

A feature of the present invention is the use of universal code, such that any client terminal 130, 140 may access the server 116 regardless of the platform of the client terminal 130, 140. Thus, a user may initiate an order at a first client terminal 130, such as, for example, a PC terminal, be interrupted, and complete the order at a second client terminal
10 140, such as, for example, a UNIX terminal.

In an illustrative embodiment of the present invention, the electronic order routing system is a C program running on a VMS operating system as the platform in a VAX server. The database 118 is a Sybase System 11. The program is downloaded locally to the client terminal 130, 140 by accessing a web-page on the server 116. The interactive
15 user interface of the client terminal 130, 140 is configured using Visual Basic under Windows NT to run the program. Variations in the programming languages, software platforms, operating systems, hardware components, and other technology mentioned in this preferred embodiment may always be enhanced to incorporate the most advanced available technology.

20 Referring now to Figure 2, the system process is depicted in which a broker enters details of an order 201 into the CrossMar Host 204. The CrossMar Host 204 communicates with the Indicative Price Feed 202 and with the Message Library 204. The system check to see if the order is duplicated, and the user (e.g., broker) can choose to confirm the order 205. The order is then pending 206 in the system. Once an order is pending 206, either a broker

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can cancel the order prior to cut-off time **207**, or a fund manager downloads and confirms receipt of the order **211**. If the broker cancels, it is cancelled in the system **208**. If the fund manager downloads and confirms receipt of an order **211**, then the order is received in the system **212**. Once an order is received **212**, the order can be filled **214**, rejected **215**, or

5 waiting **216** for further instructions from a fund manager **217**. Additionally, the broker can receive a cancelled transaction **210**. After the fund manager acts on the order, the system recognizes confirmation of order from the fund manager **218** as well as confirmation of orders received from a broker **219**. Further details of the process are described in Table 1 below.

10 **Table 1: Details of System Process**

State	Description
CrossMar Host 203	New order entered by the broker but not yet confirmed for processing. Entered orders are ignored by the fund manager.
Pending 206	Complete order pending upload to the fund manager.
ReceivedFM 212	Order that has been transmitted to the fund manager.
ReceivedFMCancel 210	Order that was transmitted to the fund manager but subsequently cancelled by broker
Cancelled 208	Cancelled order that has been transmitted to the fund manager.
Filled 214	Order filled by the fund manager.
Rejected 215	Order rejected by the fund manager
Wait 216	Order wait, pending further update from fund manager

Figure 3A, entitled "System Schematic," and figure 3B, entitled "Design Overview," further illustrate the network topology and communication details in embodiments of the methods and systems for electronic order routing. For example, in

15 Figure 3A, the security manager 112 is coupled with authorization/confirmation files **301**, **302** and with an error file **303**. In Figure 3B, the client terminal **130** comprises a GUI application **131**, a 32 bit DLL **132**, and a standard DLL **133**. Further, the server **116**, is

coupled with a standard database library **350** that communicates with the database **118**.

The GUI application **131** for an embodiment of the present invention can be programmed to take in most any format of spreadsheet that a fund manager or a broker happens to have. In this way, a fund manager can import his or her latest prices every morning into the system, and the latest prices will then be available to any of the brokers that come into the system.

In an embodiment of the present invention, another function that the fund manager has is the ability to export orders that have been placed on the system by the brokers into another spreadsheet. They can then take those orders and either fill them manually or upload the spreadsheet into their order administration systems and later on in the same day generate a spreadsheet from their system of filled orders which they would import into the system for an embodiment of the present invention. Thus, an aspect of an embodiment of the present invention provides an electronic interface through the spreadsheets.

As an example of the process flow for an embodiment of the present invention, the broker logs in to the system in the morning and browses through the funds. When the broker finds funds for which the broker wishes to transact, the broker enters an order. At a later time, the fund manager accesses the same system, downloads the orders, and fills them. At a still later time in the day, the fund manager uploads the filled orders into the system, so that they can be accessed by the broker. The broker can then look them up and print them out. An important aspect of an embodiment of the present invention is providing messaging between the broker and the fund manager, which replaces the faxes that were previously sent between the two.

Typically, fund prices change only once a day, so the constraints on the broker are that they must enter all of their orders by the fund cutoff, which is some time in the early

afternoon, depending on the fund. Therefore, the broker can enter orders at any time up until that point. After that point, they cannot enter orders for that same day but can only enter orders for the next day. It is at that point that the pricing of the order and filling of the orders begins at the fund manager. Accordingly, some time after cutoff, the broker gets the results of the orders that they placed.

The broker is generally acting on behalf of retail customers who can simply telephone or otherwise communicate with the broker and tell the broker that they want to purchase, redeem, or switch a certain number of shares or monetary amount of a particular mutual fund. The broker then puts that order into the system for an embodiment of the present invention. The fund manager that is actually maintaining that fund sees the order and then, later in the day, the fund manager executes that order and passes back to the broker the fund pricing information and the total funds due to or due from the broker. The broker's wholesale cost will vary depending on his arrangement with the fund manager. The broker provides the retail price to the client.

Figure 4, entitled "Database Schematic," shows the databases and relationships between databases in an embodiment of the methods and systems for electronic order routing. The database tables are shown in the boxes and the lines depict the relational model between the tables, with the identifiers that join the tables. Table 2 below further explains the database tables.

Table 2: Description of Database Tables

<i>Users</i> – contains the user name, ITS address, type (e.g., fund manager or broker), privilege, and other information for each user of the system. The user table contains an ‘Owner_id’ field which links to either the Brokers table or the Fund Manager table depending on the user type.
<i>Brokers</i> – contains the details of the brokerage firms, each firm being represented by a record in the table.
<i>Accounts</i> – contains the notion of a broker’s account with a fund manager. The accounts determine if the broker has a trading relationship with the fund manager and hence can see their funds’ prices.
<i>Orders</i> – contains the detail of each order, including order state, date, fund, and financial information.
<i>Switches</i> – relates several orders together for the purpose of switch transactions.
<i>Funds</i> – contains fund details, including indicative rates. Each fund relates to one particular fund manager.
<i>Jurisdiction</i> – determines the country codes where a fund is available, hence determines which funds are available to each broker.
<i>System</i> – contains the version number of the database for the automated build procedure.
<i>Dropdown</i> – contains lists of drop-down information used to populate fields on the GUI.

Figure 5, entitled “Logging On,” is a process flow model for logging onto the system in an embodiment of the methods and systems for electronic order routing. In step 501, the client terminal 130, 140 places a TCP/IP call to one or more of the message routers 114. In 502, the message router 114 accepts the call and allocates a channel. In 503, the user enters the user name and password, which is transmitted to the message router 114. In 504, the message router 114 passes details about the user and the method used to place the call (e.g., the user’s name, node, etc.) to the security manager 112. In 505, the security manager 112 verifies if the user is permitted to connect to the system and informs the message router 114. In 506, the message router 114 transmits an acceptance to the client terminal 130, 140. In 507, the client terminal 130, 140 sends a registration message to the server 116. In 508, the server 116 checks its user profile table, and allocates the user a session.

Figure 6, entitled "Viewing Order Detail," is a process flow model for viewing order detail in an embodiment of the methods and systems for electronic order routing. In step 601, the Broker user fills out a series of filters to zero in on a particular order. In 602, the client terminal 130, 140 sends a request for the detailed information from the server 116. In 603, the server 116 executes a transaction database stored to search the transaction database 118. In 604, server 116 collects the results from the transactional database 118, and transmits them back to the client terminal 130, 140.

Figure 7 entitled "Fund Manager Order Download," is a process flow that a fund manager would follow to download an order in an embodiment of the methods and systems for electronic order routing. In step 701, the fund manager client terminal GUI application sends a message to the server 116 to request a download of orders. In 702, the server 116 executes a stored procedure on the database server to select the appropriate orders. In 703, the server 116 packages the order information and returns them in a message to the GUI application. In 704, the GUI application displays the orders in a spread-sheet. In 705, the fund manager exports the spread-sheet to an excel format file (or to another standardized file).

Turning now to the illustrative user modules depicted in Figures 8-31, these modules represent screen shots that display and prompt the user to view, input, select, and/or transmit order or other financial transaction information. The user modules selectively access software objects populated with data at logon time and prompt the user to select and enter various information/data about an order or other transaction. These modules can be categorized into the following two categories -- Broker User Modules and Fund Manager User Modules -- and are described in detail below.

Broker User Modules

Figure 8 depicts an embodiment of the “Broker User Module - Initial Log-on” illustrating the logon user module for a broker. The broker logs onto the system inputting his or her username and password. In an embodiment of the present invention, this is validated by the central process and if invalid, the application terminates. If three inaccurate logons are attempted the account is disabled and a call is necessary to the administrator for reset. All passwords must comply with a secure format policy.

Figure 9 depicts an embodiment of the “ Broker User Module - View Rates” that allows the broker to select the commands and sub-commands from the drop-down menu associated with the functions described in Table 3 below.

Table 3: Commands and Sub-Commands from Drop Down Menu Bar

Command	Sub-Command
<i>File</i>	<i>Print</i> - User reports <i>Exit</i> - Exit program
<i>View</i>	<i>Rates</i> - Go to Rates User Module <i>Transactions</i> - Go to Transaction User Module <i>Orders</i> - Go to View Orders User Module
<i>Options</i>	<i>Change Password</i> - Go to Change Password User Module <i>Set Defaults</i> - Go to Set Defaults User Module <i>Add Clients</i> - Go to Add Clients User Module
<i>Reports</i>	<i>Orders</i> - Run Orders Report
<i>Window</i>	<i>Cascade</i> - Perform this function on any open window <i>Tile Horizontally</i> - Perform this function on any open window <i>Tile Vertically</i> - Perform this function on any open window
<i>Help</i>	<i>Mutual Funds</i> - Bring up Help functionality <i>About</i> - Display version and license information

For each offering, a broker is able to view the Fund Manager, Fund Name, Fund ID Number, Currency, Initial Fee %, Redemption Fee %, Type Of Fund, NAV, Bid, Offer, and

Pricing Date. There are several possible Fund ID Numbers for each fund. Brokers can select a view of either ISINs, local codes (e.g., Germany WPKN numbers), or clearing organization codes (e.g., CEDEL). For each view, a broker selects either "Global Certificates" or "Registered Shares." The broker has the ability to change the view of the type of Fund ID that is displayed.

In another embodiment, a broker is able to view all mutual funds available for him or her to legally purchase or sell. A broker is usually limited to sell funds that have been registered within a country. Therefore, brokers residing in different countries will have a different view of funds available that depend on the jurisdictional constraints for each fund. Also, all brokers may not deal with all fund managers that are present on the system, thus only fund managers associated with that broker are displayed. In another embodiment, prices are updated daily.

Figures 10A and 10B, entitled "Broker User Module - Transaction," depict user modules that a broker views, inputs, selects, and/or transmits transaction information in an embodiment of the methods and systems for electronic order routing.

Figure 11 is an embodiment of the "Broker User Module - Sample of Fund Pricing with Selection of Fund, "Jump" to Transaction User Module," illustrating a search that uses one or more of the following fields: Fund Manager, Fund Name, Fund ID Number, and/or Currency. The broker is able to input a criterion, select from a list of criteria, and/or specify an exact match if required. The broker can rearrange the columns on this view and save it as a new layout.

Referring now to Figures 12, 13, and 14, a broker can enter a transaction user module in one of two ways: (1) "jump" to a transaction user module by selecting a particular fund; or (2) go directly to a transaction user module from the initial menu by selecting the *View*

command and then selecting the *Transaction* command. After inputting the Fund Name or Fund ID Number, the rest of the fund information is automatically uploaded and displayed to the user module.

The layout for the transaction screen varies depending upon the type of transaction selected as well as certain other information selected within the transaction screen. The system's default is the "Purchase" transaction. Fund Information (Fund Manager, Fund Name, Fund ID, CCY, Initial, NAV, Bid, Offer, Price Date) is displayed at the top of the transaction screen. Menu items on the transaction user module perform the functions described in Table 4.

Table 4: Commands on the Transaction User Module

Command
<i>Exit</i> - Exit user module without processing a transaction
<i>Allocate</i> - Allow client level details of an order to be input
<i>Next and Previous</i> – Scroll through fund names
<i>Submit</i> – Send order through validation checks

Automatically generated information is provided in the *Transaction Reference* and *Order Status* fields as described below. *Order Status* initially displays a status of *Pending* order or other financial transactions. There is an addition facility to "copy" all information to be input by the broker from a previously submitted transaction. Once copied, the broker can modify the information and submit it as a new order.

In an embodiment of the present invention, a broker is required to enter the fields identified and described in Table 5 in order to complete a "Purchase" transaction.

Table 5: Fields Required by a Broker to Complete a "Purchase" Transaction

Required Field to Complete a Purchase Transaction
<p><i>Book Shares.</i> Brokers select either <i>Nominee</i> (if booking the transaction in an account at the fund manager under their own name) or <i>Client</i> name (if booking the transaction in an account at the fund manager under their client's name). Brokers may buy funds either in their own name or on behalf of a client. In the latter case, client information is forwarded to the fund manager. In either case, the process assumes the broker has a pre-established account number (<i>Nominee</i> or <i>Client</i>).</p>
<p><i>Basis.</i> Brokers select a purchase in terms of <i>Shares</i> or <i>Cash</i> amounts.</p> <p>If <i>Shares</i> is selected, the broker must input a numeric amount in the <i>Number of Shares</i> field.</p> <p>If <i>Cash</i> is selected, the broker must then indicate:</p> <p style="padding-left: 40px;"><i>Cash Amount</i> – a numeric input</p> <p style="padding-left: 40px;"><i>Transaction Currency</i> – selected from a drop-down list of possible currencies in the following order: EUR, USD, CHF, GBP, JPY, SEK, NOK, CAD, all others appear in alphabetical order.</p> <p style="padding-left: 40px;"><i>Rounding</i> – Either <i>Up</i>, <i>Down</i>, or <i>Full+Fraction</i></p>
<p><i>Settlement.</i> Brokers select either <i>Standard</i> or <i>Non-Standard</i>. If <i>Non-Standard</i> is selected, then the broker will need to input the following non-standard settlement instructions:</p> <p style="padding-left: 40px;"><i>Bank</i></p> <p style="padding-left: 40px;"><i>City</i></p> <p style="padding-left: 40px;"><i>Account</i></p> <p style="padding-left: 40px;"><i>SWIFT code</i></p>
<p><i>Account.</i> Broker inputs or selects from a drop down menu an account for the transaction. Note that the list of accounts to choose from will vary based upon the selection under <i>Book Shares</i> described above. The drop-down menu for the list of accounts for transactions booked at the client level is ordered using a <i>Client ID</i>. There is a different set of accounts for each fund manager.</p>
<p><i>Settlement CCY.</i> The broker makes a selection from a drop-down list of possible currencies, for example, EUR, USD, CHF, GBP, JPY, SEK, NOK, CAD.</p>
<p><i>Dealing Terms.</i> The broker selects either <i>Standard</i>, <i>Reinvest Commission</i>, or <i>Special Promotion</i>. If <i>Reinvest Commission</i> is selected, a further choice of <i>All</i>, <i>1%</i>, or <i>2%</i> is required.</p>
<p><i>Type of Shares</i> (not included on screen print). The system displays either <i>Global</i></p>

Certificate or *Registered* depending on the *Fund ID*. If the broker changes this field (e.g., from *Global Certificate* to *Registered*) then the *Fund ID* in the fund information section changes accordingly.

Transaction Type. The broker selects *Purchase*, *Redemption*, or *Switch*.

In an embodiment of the present invention, a broker may optionally enter the fields identified and described in Table 6 in order to complete a "Purchase" transaction.

Table 6: Optional Fields Input by a Broker to Complete a "Purchase" Transaction

Optional Fields to Complete a Purchase Transaction
<i>Text Field</i> . This field allows Broker to input a reference number for the transaction or any other information desired.
<i>Allocate</i> . This user module allows the broker to store information as to the underlying client level details of an order. The broker inputs/selects from a <i>Client ID</i> and a corresponding number of shares. The system displays each client's account number.

Figures 15 and 16 depict sample user modules for a full redemption and for a partial redemption for cash. In an embodiment of the present invention, a broker is required to enter the fields identified and described in Table 7 in order to complete a "Redemption" transaction.

Table 7: Fields Required by a Broker to Complete a "Redemption" Transaction

Required Field for a Redemption Transaction
<i>Book Shares</i> . Brokers select either <i>Nominee</i> (if booking the transaction in an account at the fund manager under their own name) or <i>Client</i> name (if booking the transaction in an account at the fund manager under their client's name). Brokers may buy funds either in their own name or on behalf of a client. In the latter case, client information is forwarded to the fund manager. In either case, the process assumes the broker has a pre-established account number (<i>Nominee</i> or <i>Client</i>).
<i>Basis</i> . This field is only valid if a <i>Partial</i> selection is selected in the field below. Broker then selects a purchase in terms of <i>Shares</i> , <i>Cash</i> , or <i>Percentage</i> amounts.
If <i>Shares</i> is selected, the broker must input a numeric amount in the <i>Number of Shares</i>

field.

If *Cash* is selected, the broker must then indicate:

Cash Amount – a numeric input

Transaction Currency – selected from a drop-down list of possible currencies in the following order: EUR, USD, CHF, GBP, JPY, SEK, NOK, CAD, all others appear in alphabetical order.

Rounding – Either *Up*, *Down*, or *Full+Fraction*

If *Percentage* is selected, the broker must then input a numeric input ≤ 100 .

Settlement. Brokers select either *Standard* or *Non-Standard*. If *Non-Standard* is selected, then the broker will need to input the following non-standard settlement instructions:

Bank

City

Account

SWIFT code

Account. Broker inputs or selects from a drop down menu an account for the transaction. Note that the list of accounts to choose from will vary based upon the selection under *Book Shares* described above. The drop-down menu for the list of accounts for transactions booked at the client level is ordered by a *Client ID*. There is a different set of accounts for each fund manager.

Settlement CCY. The broker makes a selection from a drop-down list of possible currencies, for example, EUR, USD, CHF, GBP, JPY, SEK, NOK, CAD.

Dealing Terms. *Standard* is the only choice initially.

Transaction Type. The broker selects *Purchase*, *Redemption*, or *Switch*.

Full or Partial. The broker is required to select one type. Note, if *Nominee* has been selected in the *Book Shares* field above, the selection *Full* redemption should not be available.

In an embodiment of the present invention, a broker may optionally enter the fields identified and described in Table 8 in order to complete a “Redemption” transaction.

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Table 8: Optional Fields Input by a Broker to Complete a “Redemption” Transaction

Optional Fields for a Redemption Transaction
<i>Text Field.</i> This field allows Broker to input a reference number for the transaction or any other information desired.
<i>Allocate.</i> This user module allows the broker to store information as to the underlying client level details of an order. The broker inputs/selects from a <i>Client ID</i> and a corresponding number of shares. The system displays each client's account number.

Figures 17 and 18 depict sample user modules for a full switch and for a partial switch for cash. When a “Switch” transaction is selected, there are two sets of fund data required.

- 5 The broker should either be able to input a Fund Name or Fund ID in the second fund area or go back to the Broker User Module - View Rates (Figure 9) to highlight the second fund for the transaction.

In an embodiment of the present invention, a broker is required to enter the fields identified and described in Table 9 in order to complete a “Switch” transaction.

10 **Table 9: Fields Required by a Broker for a “Switch” Transaction**

Required Field for a Switch Transaction
<i>Book Shares.</i> Brokers select either <i>Nominee</i> (if booking the transaction in an account at the fund manager under their own name) or <i>Client</i> name (if booking the transaction in an account at the fund manager under their client's name). Brokers may buy funds either in their own name or on behalf of a client. In the latter case, client information is forwarded to the fund manager. In either case, the process assumes the broker has a pre-established account number (<i>Nominee</i> or <i>Client</i>).
<p><i>Basis.</i> This field is only valid if a <i>Partial</i> selection is selected in the field below. Broker then selects a purchase in terms of <i>Shares</i>, <i>Cash</i>, or <i>Percentage</i> amounts.</p> <p>If <i>Shares</i> is selected, the broker must input a numeric amount in the <i>Number of Shares</i> field.</p> <p>If <i>Cash</i> is selected, the broker must then indicate:</p> <p style="padding-left: 40px;"><i>Cash Amount</i> – a numeric input</p> <p style="padding-left: 40px;"><i>Transaction Currency</i> – selected from a drop-down list of possible</p>

currencies in the following order: EUR, USD, CHF, GBP, JPY, SEK, NOK, CAD, all others appear in alphabetical order.

Rounding – Either Up, Down, or Full+Fraction

If *Percentage* is selected, the broker must then input a numeric input ≤ 100 .

Account. Broker inputs or selects from a drop down menu an account for the transaction. Note that the list of accounts to choose from will vary based upon the selection under *Book Shares* described above. The drop-down menu for the list of accounts for transactions booked at the client level is ordered by a *Client ID*. There is a different set of accounts for each fund manager.

Transaction Type. The broker selects *Purchase, Redemption, or Switch*.

Full or Partial. The broker is required to select one type. Note, if *Nominee* has been selected in the *Book Shares* field above, the selection *Full* switch should not be available.

In an embodiment of the present invention, a broker may optionally enter the fields identified and described in Table 10 in order to complete a “Switch” transaction.

Table 10: Optional Fields Input by a Broker for a “Switch” Transaction

Optional Fields for a Switch Transaction
<i>Text Field.</i> This field allows Broker to input a reference number for the transaction or any other information desired.
<i>Allocate.</i> This user module allows the broker to store information as to the underlying client level details of an order. The broker inputs/selects from a <i>Client ID</i> and a corresponding number of shares. The system displays each client’s account number.

A broker clicks on the “Submit” icon displayed on one of the transaction user modules (Figures 10-18) in order to process a transaction order and to bring up the “Broker User Module – View Order,” as depicted in Figures 19A and 19B. The present invention then performs the following series of required checks regarding the validity of the order information input:

1. All required information has been entered. Note that the only optional fields are the text field and the allocation information.
2. Numeric input has been received in the *Number of Shares* or *Cash Amount* fields.
3. Numeric input \leq to 100 has been received in the *Percentage* for a Partial Redemption or Switch.
4. Switches are occurring only between funds from the same Fund Manager and where the initial fee for the Buy fund is \leq to the initial fee of the Sell fund.
5. Purchase and Redemption amounts exceed fund minimums.

Figures 20A-D and Figure 21 depict sample error messages that are displayed to a user if any of the order checks described above are invalid. These error messages further prompt the broker to correct the error.

In an embodiment of the present invention, the methods and system also check for identical orders submitted that day. If an identical order is found, the broker is asked to confirm that they still wish to submit the order.

Figures 22A-E depict sample order confirmation messages that prompts a broker to confirm an order upon completion and verification of required fields. Once the order has been confirmed, the present invention provides a unique transaction reference number. In addition, the order status is changed from *Pending* to *Order Confirmed* and the transaction reference number appears in the *Transaction Reference* field. The order information is then written into the order attributes database. If the broker decides not to confirm the order, the status is changed to *Order Declined*.

Figure 23, entitled "Broker User Module - View Orders," allows a broker to view all orders in the order attributes database. Searches on this data by Fund Manager, Fund Name, Fund ID Number, Status, Transaction Reference Number, and/or Order Date are possible. The broker is able to input a criterion, select from a list of criteria, and/or specify an exact

match if required. For a search by Order Date, the broker is able to input a specific date or a range of dates (e.g., older than 10 days). The broker is able to rearrange the columns on this view and save it as a new layout. In addition, all fields in this database can be displayed.

Figure 32, entitled "List of Database Fields in the 'View Order' User Modules" identifies

5 sample data fields, brief descriptions, whether always present, and sample values in the order attributes database.

In another embodiment of the present invention, the broker is able to select and cancel an order from the "View Order" user module. Orders can be canceled on the order date up to a specified order submission time when the status is either *Pending* or *Received FM*. To
10 cancel an order, the broker highlights the order, clicks on *Trade Cancel*, and then confirms cancellation of that particular order. The status of the order is then changed to *Cancel* if the order was *Pending* or to *ReceivedFMCancel* if the status prior to the cancellation was *ReceivedFM*.

By selecting the *Options* command and then the *Change Password* command, the
15 "Change Password" user module as depicted in Figure 24 is displayed and the broker can change his or her password. To be accepted, the new password must conform with a specified format policy.

By selecting the *Options* command and then the *Set Defaults* command, the "Set Defaults" user module as depicted in Figure 25 is displayed and a user can update the default
20 values for the transactions screens. This function is available to users with administrator privileges. The fields for which default values may be defined include: (1) Book Shares; (2) Basis; (3) Settlement; (4) Account; (5) Transaction Currency; (6) Rounding; (7) Settlement Currency; (8) Dealing Terms; and (9) Type of Shares. The user is able to select

a default currency from the list of currencies or is able to have the currency default to that of the fund for which the transaction is being ordered.

By selecting the *Options* command and then the *Add Clients* command, the “Add Clients” user module as depicted in Figure 26 is displayed and a user is able to add a list of client accounts. There are facilities to input and upload this information. This information is used to generate the account listing for accounts booked at the *Client* level and/or allocate shares for orders booked at the *Nominee* level. For each client, a user is able to input or modify Client Name, Client ID, Broker Account Number, and Fund Manager Account Numbers (one per fund manager per client).

Fund Manager User Modules

Figure 27 depicts an embodiment of the “Fund Manager User Module - Initial Log-on” illustrating the logon user module for a fund manager. The fund manager logs onto the system inputting his or her username and password. In an embodiment of the present invention, this is validated by the central process and if invalid, the application terminates. If three inaccurate logons are attempted the account is disabled and a call is necessary to the administrator for reset. All passwords must comply with a secure format policy.

Figures 28A and 28B depict embodiments of the “Fund Manager User Module - View Rates” that allow the fund manager to select the commands and sub-commands from the drop-down menu associated with the functions described in Table 11 below.

Table 11: Commands and Sub-Commands from Drop Down Menu Bar

Command	Sub-Command
<i>File</i>	<i>Print</i> - User reports <i>Exit</i> - Exit program
<i>View</i>	<i>Rates</i> - Go to Rates User Module <i>Transactions</i> - Go to Transaction User Module

	<i>Orders</i> – Go to View Orders User Module
<i>Options</i>	<i>Change Password</i> – Go to Change Password User Module <i>Set Defaults</i> – Go to Set Defaults User Module <i>Add Clients</i> – Go to Add Clients User Module
<i>Reports</i>	<i>Orders</i> – Run Orders Report
<i>Window</i>	<i>Cascade</i> – Perform this function on any open window <i>Tile Horizontally</i> – Perform this function on any open window <i>Tile Vertically</i> – Perform this function on any open window
<i>Help</i>	<i>Mutual Funds</i> – Bring up Help functionality <i>About</i> – Display version and license information

For each offering, a fund manager is able to view the Fund Manager, Fund Name, Fund ID Number, Currency, Initial Fee %, Redemption Fee %, Type Of Fund, NAV, Bid, Offer, and Pricing Date. There are several possible Fund ID Numbers for each fund. Fund managers can select a view of either ISINs, local codes (e.g., Germany WPKN numbers), or clearing organization codes (e.g., CEDEL). For each view, a fund manager selects either “Global Certificates” or “Registered Shares.” The fund manager has the ability to change the view of the type of Fund ID that is displayed. In another embodiment of the present invention, prices are updated daily.

By selecting the *View* then *Orders* command, the “Fund Manager User Module – View Orders” as depicted in Figures 29A or 29B is displayed and the fund manager can view all of his or her orders in the order attributes database. Fund managers can only view an order for his or her fund. All fields in this database are able to be viewed with the exception of *Client ID*, *Broker Client Account Number*, *Allocation Details*, and the *Text* field. Searches on this data are available by Broker, Fund Name, Fund ID Number, Status, Transaction Reference Number, and/or Order Date can be performed. The fund manager is able to input a criterion, select from a list of criteria, and/or specify an exact match if required. The fund

manager is able to rearrange the columns on this view and save it as a new layout. Figure 32, entitled "List of Database Fields in the 'View Order' User Modules" identifies sample data fields, brief descriptions, whether always present, and sample values for the order attributes database.

From the "Fund Manager User Module – View Orders," order information is electronically transmitted to the fund manager in the format required by that particular fund manager. In an embodiment of the present invention, a fund manager may download a file of pending transactions. The format for the download varies by each fund manager's communications and computer systems. After clicking the *Download* icon, a fund manager is required to designate where the downloaded file should be stored.

Figure 30, entitled "Fund Manager User Module - Sample Specification of Location of Download File," illustrates a sample user module to specify the download location of a file. Only "Pending" and "ReceivedFMCancel" orders can be transmitted (via download or otherwise). Once transmitted, the status of orders is automatically updated as follows:

<u>Status Prior to Transmission</u>	<u>Status Subsequent to Transmission</u>
Pending	Received FM
ReceivedFM	Cancel

In another embodiment, the order attributes database field "Received Fund Manager" is updated with the date and time that the information is received by the fund manager. The fund manager subsequently provides additional information for each order. The data fields required depend on the fund manager's response to the order (e.g., decisions to fill, reject, or wait for payment) and is set forth in Table 12. Once the order information has been updated,

the order status should be changed to either “Filled,” “Rejected,” or “Non-credit customer; awaiting payment.”

Table 12: Fields Updated Depending on Fund Manager’s Order Decision

Fund Manager’s Decision	Required Field
For “Filled” Orders	NAV price per share* Total Funds due/to be received (Purchase/Redemption) Total Shares (Purchase/Redeemed or Switched)* FX Rate (if applicable) Execution Date/Time Commission (if applicable) *In the case of a Switch, there are two NAVs and two Total Shares.
For “Rejected” Orders	Incomplete settlement instructions No credit available Redeemed more shares/monetary amounts than owned
For “Wait” Orders	<i>No additional information required</i>

In an embodiment of the present invention, this information could be transmitted in the form of a file upload which is read by the electronic order routing system to automatically update the appropriate fields in the order attributes database. After clicking the *Upload* button, the fund manager is required to designate where the file to be uploaded is stored. In another embodiment of the present invention, transmission of order information between the electronic order routing system and the fund manager could also be done via messaging following FIX protocol.

By selecting the *Options* command and then the *Change Password* command, the “Change Password” user module as depicted in Figure 31 is displayed and the fund

manager can change his or her password. To be accepted, the new password must conform with a specified format policy.

Figure 32, entitled "List of Database Fields in the 'View Order' User Modules" identifies sample data fields, brief descriptions, whether always present, and sample values in the orders attributes database in an embodiment of the present invention. Note that the items identified with an asterisk (*) are filled in by the fund manager upon completion or rejection of an order.

Broker Reports

In another embodiment of the present invention, detailed broker reports can be sorted or filtered for orders not yet filled by the fund manager using any combination of the following fields: (1) Transaction Number; (2) Time: Broker Entry; (3) Fund Manager Name; and/or (4) Status. An example is depicted in Table 13 below.

Table 13: Example of a Broker Report for Orders Not Yet Filled

Transaction Reference Number	Fund Manager Name	Fund name	Fund number	Account	Transaction type	Amount	Amount type	Status	Time: Broker Entry	Time: Fund Manager Receipt
VES1	Fidelity	America Equity	999250	F9999999	B	10000	Euro	Pending	14/3/99 13:30	
VES2	Fidelity	America Equity	999300	F10000000	S	2000	Shares	Pending	14/3/99 13:31	
VES3	Fidelity	America Equity	999350	F10000001	Sw	-100	%	Recvd FM	14/3/99 13:32	14/3/99 14:32
		Europe Equity	999360			100	%			

Potential Values:
B = Buy
S = Sell
Sw = Switch

Potential Values:
Currencies =
cash amt
Shares =
share amt
% = Full or
% partial

Potential Values:
Pending
Recvd FM
Cancel

Blank if status =
Pending or
Cancel

In another embodiment of the present invention, detailed broker reports can be sorted or filtered for filled orders using any combination of the following fields: (1) Transaction Number; (2) Time: Broker Entry; and/or (3) Fund Manager Name. An example is depicted in Table 14 below.

Table 14: Example of a Broker Report for Filled Orders

Transaction Reference Number	Fund Manager Reference Number	Fund Manager Name	Fund name	Fund number	Account	Transaction type	Order Amount	Order Type	Status	Time: Broker Entry	Time: Fund Manager Receipt	Time: Order Filled	NAV	Total shares	Total amount	Currency
VES1	Fves1	Fidelity	America Eqt	999250	F9999999	B	10000	Euro	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33	51	196	10,000	USD
VES2	Fves2	Fidelity	America Eqt	999300	F10000000	S	2000	Shares	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33	60	(2,002)	(120,120)	USD
VES3	Fves3	Fidelity	America Eqt	999350	F10000001	Sw	-100	%	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33	75	(333)	(25,000)	USD
			Europe Eqt	999360			100	%					40	888	27,500	Euro

Potential Values:
B = Buy
S = Sell
Sw = Switch

Potential Values:
Currencies = Pending
cash amt
Shares = share amt

Potential Values:
Recvd FM
Cancel

In another embodiment of the present invention, detailed broker reports can be sorted or filtered for reconciliation of orders for a particular day using any combination of the following fields: (1) Number of Orders filled +; (2) Number of Orders pending +; (3) Number of Orders rejected =; and (4) Number of Orders received prior day (before cut-off).

Fund Manager Reports

In another embodiment of the present invention, detailed fund manager reports can be sorted or filtered for orders not yet filled by the fund manager using any combination of the following fields: (1) Transaction Number; (2) Time: Broker Entry; (3) Broker ID; and/or (4) Status. An example is depicted in Table 15 below.

Table 15: Example of a Fund Manager Report for Orders Not Yet Filled

Transaction Reference Number	Broker ID	Account	Fund name	Fund number	Transaction type	Amount	Amount type	Status	Time: Broker Entry	Time: Fund Manager Receipt
VES1	VES	F9999999	America Equity	999250	B	10000	Euro	Pending	14/3/99 13:30	
VES2	VES	F10000000	America Equity	999300	S	2000	Shares	Pending	14/3/99 13:31	
VES3	VES	F10000001	America Equity	999350	Sw	-100	%	Recvd FM	14/3/99 13:32	14/3/99 14:32
			Europe Equity	999360		100	%			

Potential Values:
B = Buy
S = Sell
Sw = Switch

Potential Values:
Currencies = Pending
cash amt
Shares = share amt
% = Full or % partial

Potential Values:
Recvd FM
Cancel

Blank if status = Pending or Cancel

In another embodiment of the present invention, detailed fund manager reports can be sorted or filtered for filled orders using any combination of the following fields: (1)

Transaction Number; (2) Time: Broker Entry; and/or (3) Broker ID. An example is depicted in Table 16 below.

Table 16: Example of a Fund Manager Report for Filled Orders

Transaction Reference Number	Fund Manager Reference Number	Broker ID	Account	Fund name	Fund number	Transaction type	Order Amount	Order Amount Type	Status	Time: Broker Entry	Time: Fund Manager Receipt	Time: Order Filled	NAV	Total shares	Total amount	
VES1	Fves1	VES	F9999999	America Equity	999250	B	10000	Euro	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33		51	196	10,000
VES2	Fves2	VES	F10000000	America Equity	999300	S	2000	Shares	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33		60	(2,002)	(120,120)
VES3	Fves3	VES	F10000001	America Equity	999350	Sw	-100	%	Filled	14/3/99 13:31	14/3/99 14:32	14/3/99 19:33		75	(333)	(25,000)
				Europe Equity	999360		100	%						40	688	27,500

Potential Values:
B = Buy
S = Sell
Sw = Switch

Potential Values:
Currencies = Pending
cash amt
Shares = Recvd FM
share amt
Cancel
% = Full or
% partial

In another embodiment of the present invention, detailed fund manager reports can be sorted or filtered for reconciliation of orders for a particular day using any combination of the following fields: (1) Number of Orders filled +; (2) Number of Orders pending +; (3) Number of Orders rejected =; and (4) Number of Orders received prior day (before cut-off).

The foregoing description, associated figures, and embodiments detail only illustrative examples of the environment in which the invention can be used and are not intended to be limiting. For instance, the user modules shown in Figures 8-31 are by way of example only. In addition, attributes can be constantly updated and additional fields can be added by authorized users and/or authorized financial institutions (e.g., financial service providers, businesses). Furthermore, the programming languages, software platforms, operating systems, hardware components, and other technology mentioned in the foregoing description are by way of example only, and the present invention may always be enhanced to incorporate the most advanced available technology. Variations and modifications of the present invention is apparent to one skilled in the art, and the above disclosure is intended to cover all such modifications and equivalents.